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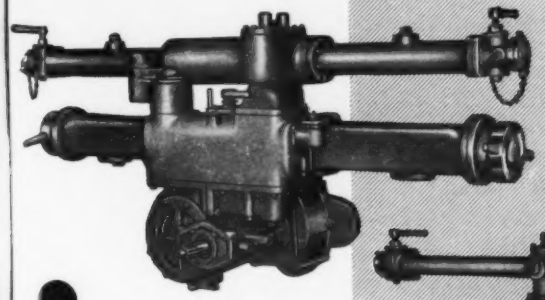

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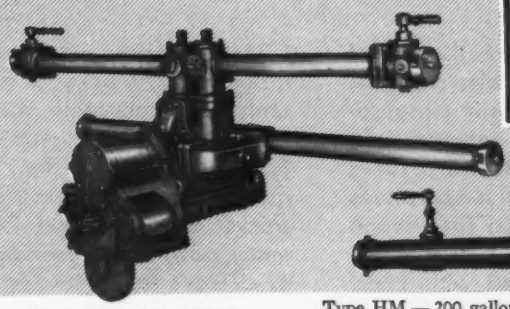

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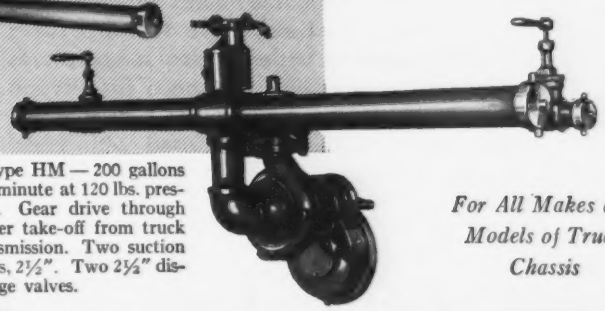

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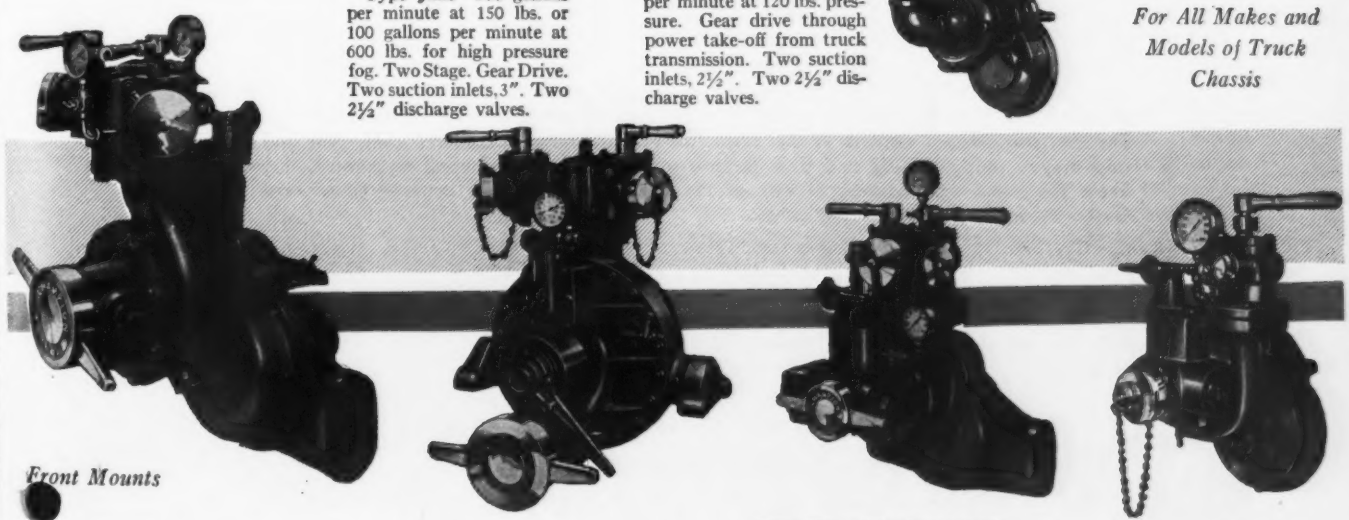

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ROCKWOOD SPRINKLER COMPANY

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Firemen

Volume 18 Number 1

WARREN Y. KIMBALL — EDITOR
PAUL R. LYONS — ASSOCIATE EDITOR
HENRY S. GERE — ADVERTISING MANAGER

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Salina Fire Department

The cover photo shows the new home of the Fire Department at Salina, Kansas. This station is one of the finest in any city of about 25,000 population and has just been completed at a cost of approximately $140,000. It occupies one-half of a city block just a short distance from the high value district of this flour milling and industrial community. The Salina Fire Department headed by Chief J. E. Travis has developed some unusual techniques for placing pre-connected hose lines in operation. It has excellent equipment including a new 100 ft. aerial with 750 gpm pump. Its own shops have introduced many inovations that have made fire fighting quicker and more efficient. A complete story starts on page 6.

Last year's Fire Calendar proved so popular that the NFPA has published a similar edition for 1951. Printed in two colors on stiff paper, and measuring 8½ x 11 in., it is available at $2.50 per hundred, $17.50 per thousand.

Volunteer Spirit

FIREMEN recently received a letter from Captain Willis H. Liggitt, USAF (MSC) 1736th Air Transport Squad (A/E) Brooks Air Force Base, Texas. It contained an expression of gratitude to the members of the Belle Center Volunteer Fire Department, Belle Center, Ohio, (Captain Liggitt's home town) for a thoughtful gesture in a time of need.

This section of Ohio was smothered by one of the worst blizzards in its history during Thanksgiving week. Captain Liggitt's mother passed away on the Friday following Thanksgiving, and when he arrived home on emergency furlough the next night the snow had drifted badly and was still falling. On Sunday, the day of the funeral, the roads were impassable.

Fire Chief Harold M. Reames and other members of the Belle Center department had fought an eight-hour fire in the nearby town of Roundhead on Thanksgiving Day. Yet at ten o'clock on Sunday morning they turned out spontaneously and unanimously in front of the Liggitt home and with snow-shovels they tackled the drifts, some of which were four feet deep. They cleared the street to the church, six blocks away, the road to the cemetery, and then through the cemetery.

Space does not permit quotation of the gratitude that Captain Liggitt expressed in his letter to this office, nor can editorial comment offer sufficient tribute to the fine spirit that was shown by the Belle Center members. Captain Liggitt subscribed to an NFPA membership to be given to the department in recognition for their thoughtful deed.

Chief J. E. Travis

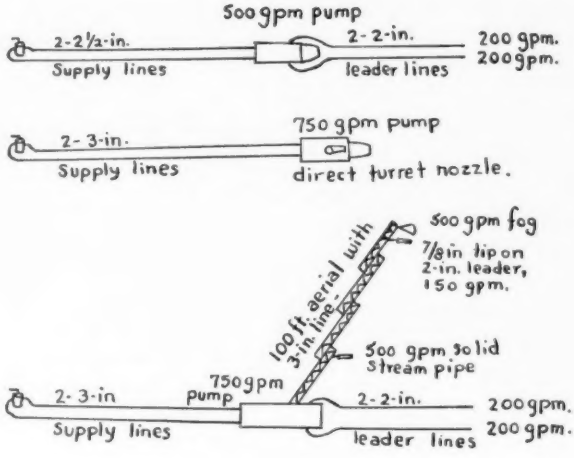
Salina, Kansas
Fire Department Extraordinary

THE Fire Department of Salina, Kansas, under Chief J. E. Travis (member NFPA) is fast becoming one of the outstanding fire departments of the Middle West. It is housed in a handsome new block-long fire headquarters station having commodious fire department shops, training tower and grounds, fire chief's and fire prevention offices, and ample parking space for firemen's cars. It is doubtful if any fire department of comparable size can boast of apparatus in a better state of mechanical efficiency or of more efficient operating techniques. Chief Travis' fire prevention efforts include a campaign to get all possible store basements protected by automatic sprinklers. His department's use of a combustible gas indicator to detect leaks has already paid off by bringing about the replacement of many old gas service connections that had plagued the city through a series of gas explosions. Salina is a community of 26,000 population.

The operating techniques of the Salina Fire Department are among its unusual features. Pumpers are not stationed at distant hydrants remote from a fire, nor does hose stream performance depend upon the caprice of individual hydrant pressures. Each pumper has a divided hose body and lays two large supply lines. This enables each pump to operate close to the fire where all tools and appliances will be handy. Each pumper supplies two streams through pre-connected lines.

In general, on first alarms, pumpers are assigned to both front and rear positions so that at least four streams are instantly available from engine companies, not counting lines also provided by the pumper-aerial. Each pumper carries two 200 ft. leader lines preconnected and provided with 2½-in. Elkhart "Mystery" fog nozzles which Chief Travis reports give his hosemen a wide choice of stream patterns.

These leader lines are all of 2-in. hose having 2½-in. couplings. Chief Travis selected this size of hose for leader lines because it is lighter and easier to handle inside of buildings



TYPICAL SALINA F.D. LAYOUTS

and on ladders than 2½-in. hose and yet it provides flows up to 200 gpm and allows the use of 2½-in. nozzle equipment. In general, two men operate each of these 200 gpm streams but one man can handle each of them in an emergency. As soon as a pumper stops at a fire the two leader lines are run out. There is no delay for breaking couplings and attaching nozzles. Water supply is from generous sized tanks on the apparatus until the hydrant is turned on to supply the pump.

With 200 gpm flowing the friction loss in the 200 ft. leader lines totals 60 pounds. Pumpers set close to the building operate at 120 pounds giving ample nozzle pressure even on rare occasions when the leader lines must be pieced out with 2½-in. hose near the pump.

Salina fire hydrants have snap type couplings. Formerly, this occasioned some difficulty because hydrants of different

This new Ford V-8 is used by the Salina Department as a first response truck. It has a 500 gpm pump, aluminum extension ladders up to 35 ft. length, and a large ventilating fan.

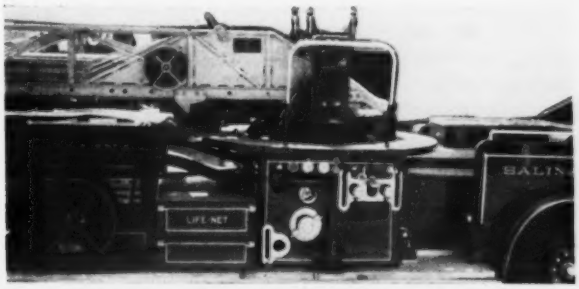
Another view of the new truck. It also includes two 90-gallon water tanks, two booster reels with "Mystery" fog nozzles, two 2-in. lines with 2½-in. "Mystery" nozzles, and two 2½-in. 1100-ft. lines for supply from hydrant to pumper.

Rear end view of Salina's American La France pumper-ladder truck with 100 ft. steel aerial, 750 gpm Class A pump, and two 50-ft. three-section aluminum extension ladders. Shown attached to the top rung of the aerial is a 500 gpm Elkhart "Mystery" fog nozzle supplied by a 100-ft. line of 3-in. hose. Mounted under the bed ladder of the aerial is another ladder pipe with solid stream tip with hose attached. This heavy artillery is supplied through the pump by two 3-in. lines shown in the divided hose body. These lines are connected to rear pump intakes shown in this picture. The two 3-in. lines will supply 750 gpm with only 12.5 pounds friction loss per 100 ft.

makes varied in the design of the hydrant nipples. Chief Travis solved this problem with an adapter coupling of local design that permits instantaneous connection of pump supply lines to hydrant outlets.

Chief Travis realizes that with pumps placed near the fire each supplying two 200 gpm streams he is getting but 80 percent of the rated capacity of his 500 gpm pumps and 53 percent of the capacity of the 750 gpm pumps. However, this is a much higher performance ratio than is obtained with conventional hose layouts of pumper companies manned to provide but one 2½-in. line or two 1½-in. leader lines. The average fire department of comparable manpower does not

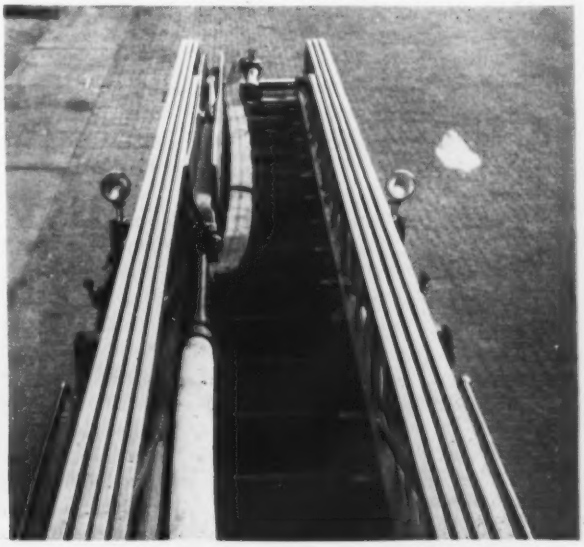
(*Continued on page 28*)



Here is the pump operator's position on the Salina pumper-aerial. Note also the rail support to safeguard the man operating the aerial. Also shown are the direct connections from pump to the two 200-ft. lines of 2-in. hose with 2½-in. fog nozzles. These quick lines are carried in compartments along the sides of the truck above the 50-ft. ladders and outside of the main hose body carrying 3-in hose. The large ventilating fan shown is unique in that the outer protective drum serves as a reel for the electric cable.

Here is another view of the Salina Fire Station with ample parking lot, large drill yard, hose tower, shops, and offices.

This is the side of the pumper-aerial opposite from the operator's position. Shown is a 100-ft. line of 3-in. hose supplying both 500 gpm fog nozzle and the 2-in. leader line at the top of the 100-ft. aerial. Also carried on this side of the truck is a 200-ft. 2-in. quick line with 2½-in. fog nozzle. Shown in the photo is the large pipe leading from one of the rear intakes to which hydrant supply lines are connected. There is one of these pipes on each side. This truck is equipped with two ladder pipes and three preconnected 2-in. lines all readily controlled by the pump operator right at the scene of a fire, not at a distant hydrant. The two 3-in. supply lines from a hydrant provide full capacity for the pump.



After the 500 gpm "Mystery" nozzle on the top of the 100-ft. aerial ladder has driven back the flames, it is not necessary for Salina fire fighters to run a line up the ladder to advance a pipe inside. Wyed off of the 3-in. line to the ladder pipe is a 2-in. line with ⅞-in. tip (150 gpm) carried in a small metal trough at the top of the ladder. In fact, this line can be used without reference to the 500 gpm nozzle.

Engineers of Steamer

by Dennis J. Kelly

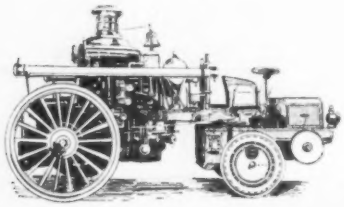
This story was featured in the October 1950 issue of WNYF, a quarterly magazine of the New York City Fire Department. The author is one of the magazine's district representatives and is attached to H & L 2. With the courtesy of the editors the story is reprinted in its entirety.

THE first Annual Report of the paid Department of New York City (1865) lists Engineers of Steamer as key personnel. The advent of the professional Department sealed the doom of hand-drawn, hand-operated engines and ended the bitter controversy between the proponents of hand-operated pumps and the champions of steam engines. As steamers rapidly supplanted hand-engines, the Engineers of Steamer became the elite of the Department.

The first steam fire engine was built in London in 1829, by Braithwaite and Ericsson. The firemen of that era were so strongly prejudiced against the new-fangled apparatus that after five had been built no more were manufactured in England for the next twenty years. Meanwhile, in 1840–41, in New York City, Paul R. Hodge built the first steam fire engine made in the United States. It was a self-propelled engine, the first of its kind ever constructed, with horizontal cylinders and pumps, and wrought iron wheels. It was designed so that it could be drawn by horses or by hand, as well as by its own steam power. It was tested at the Battery on December 15, 1841. New York City bought the steamer and placed it in service in the quarters of Pearl Hose Company No. 28, located on Chambers Street near Center Street.

"Old Mankiller," Is Right

According to records quoted by Lowell Limpus, "the apparatus proved too heavy for horses, took something like a half an hour to get into operation after reaching the fire and almost invariably some part of the machinery broke down after being set in motion."



This dismal experience soured the City on steam engines for over a decade. Reports of successful experiments in Europe revived interest, however, and in February, 1855, a steam engine competed against "Old Mankiller," the most powerful hand engine in the Department. The contest took place in front of City Hall. It took the steamer 8½ minutes to generate steam enough to start pumping, a score that the hand engine easily beat. The hand engine also outclassed the steamer in the distance it could throw a stream. But the city fathers were impressed by the power generated by the steamer and by the realization that it was still going strong when the hand engine's crew was exhausted.

Accordingly, towards the end of 1856, the City appropriated $17,000 for two self-propelled Lee & Larned steam engines. The engines received their first practical test at a fire in Duane Street on January 17, 1859. Chief Engineer Howard pointed out that the engines were large in size and powerful in action and, if permitted to discharge water at every fire would entail more damage by water than the fire would cause. Their general use was questionable, said the Chief, though they might render effective service when the Department might be called upon to do extra or laborious duty. Chief Decker, who succeeded Harry Howard as Chief Engineer, a rank equivalent to Chief of Department today, also condemned their use. He said that at large fires they were serviceable auxiliaries to the hand engines, but that they could never take the place of the hand apparatus.

The unfavorable comments of the Chiefs, however, did not deter the City from accepting a steam engine in February, 1859, as a gift from the insurance companies. Possibly the city fathers and the insurance companies were swayed in their decision by arguments brought forward by the manufacturers of the new engines. There was considerable rivalry among the volunteer companies of the day with quite a bit of resultant rowdyism. One manufacturer listed among the advantages of his steamers that, "They never get drunk, never throw brickbats and, as a matter of fact, their only disadvantage is that they can't vote." The new apparatus, an Amoskeag machine, was put in service in Manhattan Engine Company 8, located in Ludlow Street. The engine weighed 5600 lbs. and was considerably lighter than earlier models because of the substitution of steel and brass for iron in its construction. Manhattan Engine 8 was the butt of much ill-will among the other fire companies because of its steamer, and on many occasions, hose companies would refuse No. 8 a supply of water.

The ostensible reason the old firemen gave for their opposition to steamers was that a hand engine could start pumping faster. Looking over the old records, one gets the impression that the old "Vamps" resented changes of any kind. You can almost hear them saying, "The hand engines were good enough for George Washington, James Gulick and Cornelius Anderson, and they're good enough for us." Nevertheless, the steam engine replaced the hand operated pumper and the Engineer of Steam became the backbone of the Department. His salary at that time was $900 a year, not a princely amount but certainly much more than the average income of the day. We can glean some idea of the importance of the position and the prestige of the Engineer when we see that his salary exceeded that of Assistant Foreman (Lieutenant of today) by $150 per year and was $100 more per year than Foreman (Captain) received.

Sparks A'Plenty

Before the advent of Civil Service, promotions to the rank of Engineer of Steamer were initiated by the recommendations of the District Engineer (Battalion Chief). The qualifications of the applicant were determined by a board appointed by the Chief Engineer

and examinations were both oral and practical. In later years, the Police Department also examined the potential Engineer since a license was required to operate the engine. In August, 1899 the Civil Service Commission took over the examinations.

In 1872, the Department again experimented with self-propelled steam engines and in October of that year a pumper of this type was placed in service in Engine 31, one of five purchased from the Amoskeag Locomotive Works. Motive power was supplied by sprocket chains connecting a shaft on the pump and the rear wheels. The Engineer controlled the speed of the apparatus from his position on the ash pan at the rear of the steamer and the driver's duties were confined to steering and stopping the engine, a condition that conceivably led to quite a bit of confusion. These pumpers were kept in service for about ten years and, in 1884, one of the original five was converted and returned to service as a horse-drawn apparatus and the remaining four were retired and used as spares. At the time, various reasons were given for their replacement but paradoxically, the greatest objection was to their spark throwing propensity. Many fires were started by these engines while responding.

Up until the advent of the motor driven pumper, the duties of the Engineer of Steamer of 1865 were basically the same as his successors. He was responsible for the care and condition of the apparatus, the greasing of wheels, lubrication of the chassis, polishing the bright work and most important, "for supplying a good and sufficient stream of water." It was also his duty to maintain a steam pressure of ten lbs. on the steamer while in quarters, though in later years, because of the increase in the height of buildings, the figure was raised to not more than twenty lbs.

Pressure Always Up

The quarters of each Engine Company was equipped with a small pot bellied stove used exclusively to provide steam pressure for the engine. Piping extended from the stove in the cellar, up through the apparatus floor, to the pumper. A slip-joint made for quick, easy disconnection in the event of a run. In this manner, the required minimum pressure was maintained on the steamer in quarters. Excelsior and wood kindling were used as a base for the fire in the steamer and Cannel coal, a fast burning, gaseous bituminous, provided the fuel. The rules of the Department at the time required the Engineer to have a supply of Cannel coal on the apparatus sufficient for thirty minutes of steam but he usually carried just as much as he could pile on. Just as today, a Fuel Wagon was assigned to respond on multiple alarms on special calls.

The transition from horses to motorized equipment began in 1910 when the first motor driven apparatus, a hose wagon, was placed in service in Engine Company 72. In 1912, the Department began replacing horse drawn steamers with gasoline engines. Three years later fifty per cent of the apparatus of the department was motorized and the program was completed on December 20, 1922, when the horse drawn steamer of Engine 205 in Brooklyn made its last run.

By this time we were well on our way replacing the steamers with motor driven pumps and the death knell for a once proud rank, the oldest in the Fire Department, was softly tolling. On August 24, 1925, the last list for Engineer of Steamer expired. Today seven men remain active in a rank that started with thirty back in 1865 and reached a high of 489 in 1915.

The yellowed records of the Department are studded with the heroic deeds of these men and in the course of the years at least five of them gave their lives in line of duty.

Seneca Larke, a part Indian, and Charles R. Rankin, who distinguished themselves at the Equitable Building Fire in January, 1912, and later recieved medals for their heroism, were both Engineers of Steamer. Rankin later rose to the rank of Battalion Chief and at one time was in command of the largest fireboat fleet in the world. William J. Fealy, who received the Trevor-Warren and Department Medals for his heroism in rescuing a woman from a completely involved fourth floor apartment back in May, 1914, was at the time an Engineer of Steamer. Since then he has been promoted to the rank of Lieutenant and is now assigned to Headquarters Staff, Division of Transportation and Repairs.

Of the seven remaining active Engineers, two are assigned to the Division of Licensed Places of Public Assembly, John Mason in Manhattan and Harry Wandelt in Brooklyn; Mason spent quite a few years driving Chief of Department Kenlon and has a number of service ratings to his credit. John is the quiet, "never-much-happened-to-me" type of fellow, "but those other boys ought to be able to help you." So we visited the other boys.

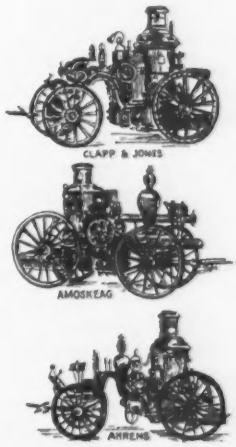
Harry Wandelt was appointed Engineer of Steamer on April 6, 1917, the date of our entry into World War I. He was then assigned to Engine 15. After all these years of mechanization Harry's faith in the old steamer is still unshaken. "I never saw one break down," he told us, "and for short runs the horses were just as fast as your present-day apparatus. On long runs or on warm days the horses' condition depended to a great extent on the pace maintained by the driver. A good 'Whip' knew his horses like a book and could feel when he should let up on the speed and coast for a while."

"Couldn't Trust 'Em"

Then we have Joe Foetsch, of Engine 70 up in the Bronx. Joe is assigned to the Hydrant Service Apparatus in the 5th Division. We spoke with him about the horses for a while. "Some were as proud as a peacock, and as gentle as a kitten. But others," continued Joe, "were as mean and unpredictable as a volcano. You never could trust them. Yet, when they left, quite a bit of the color and glamour of the Fire Department left with them."

John T. Brady of Engine Company 293 was promoted to Engineer in 1917 and after about a year with 15 Engine was transferred to the fireboat "Strong." Brady wears a bug on his sleeve for duty performed at the Equitable fire but thinks his most spectacular fire was the Black Tom Explosion over in Jersey during the first World War. "We responded with the 'Strong,'" John said, "and were there for a while when she really let go. The vessel roared and heaved, shuddered and strained but held together like a battleship. She didn't ship a pint of water either."

(Continued on page 30)



Life Safety from Fire

by Chief Reynold C. Malmquist

Digest from an address by the Chief of the Minneapolis Fire Department (member NFPA), given at the NFPA Regional Meeting in St. Paul, Minnesota, November, 1950

THE general topic "Life Safety from Fire" is one which touches the life of each person in this country. We are each concerned about it; and for many, many years, we have been giving much serious thought to how we can protect and safeguard the American people in their many activities in which they are subject to hazards in homes, schools, stores, factories, office buildings, churches, hospitals, hotels, places of amusement and public assembly, etc.

What can the fire chief do to promote life safety from fire? His first duty is to protect and save life. Second, to safeguard, or abolish causes which originate fire. Third, to provide means which may confine fire to the space in which it originates. Fourth, to supply the necessary means of adequate fire extinguishment.

A fire chief is charged with the duty of developing and maintaining an efficient department, trained in the fundamentals of practical fire extinguishment. This includes training in the proper methods of rescuing persons trapped in burning buildings or whose lives are endangered in some kind of accident. The training program set-up in any department must be adequate, progressive and have the ability to inculcate the fireman with practical ideas to so promote a more efficient department in its many manifold duties and responsibilities.

NO one closely connected with fire prevention and fire fighting during the last several years could have failed to sense the increased need for practical training, but the fact remains that the same need for training must continue in the future because of the ever-increasing complication we have in the fire service in connection with fire fighting and fire prevention. The improvement of working conditions, especially shorter working hours for the firemen, has brought home the necessity of creating means for an intensive, continuous training program. Every member of the department must be taught the basic principles of fire fighting and fire prevention. The need for continuing this organized training program is clear. Firemen do not stay trained. New and better methods of fire prevention and fire control are constantly being developed. New men are added to the force as older men leave the department. Then there is the natural growth in the scope of activities with a given department, necessitating carefully planned and well-thought-out training program extending over a period of years in which there are unit jobs to meet the rank and file fireman and officer as well.

A well-planned training program means provision for "spotting" those in the department who need training as well as those who show promise and are interested in becoming instructors. It means seeing that those most interested in becoming instructors get the necessary teacher-training. It means elementary training for new men on the department and advance training for others as they progress. It means refresher courses from time to time for those who have had some training. It means constant study and adjustment in order to meet changing needs and to keep the instructor in tune with the times. It means continued study and step-by-step improvement in the fire service.

Fire prevention is not a theoretical idea. On the contrary it is intensely practical. The experience of community after community demonstrates that the application of certain well established techniques will sharply reduce the number and severity of fires and again reduce the appalling loss of life from fire. In 1946, we had the terrible Hotel Wynnecoff in Atlanta — 119 persons burned to death, 90 injured. The Hotel La Salle in Chicago — 61 persons were killed or burned to death, the Hotel Camfield in Dubuque, Iowa — 19 persons were killed.

Because of these exemplary disasters Hartford, Connecticut, changed the building code to enforce to a greater degree the proper application of protecting lives in hotels and many of their other industrial plants or places of public assembly. I believe that the Hartford Fire Department and Hartford citizens should have received national recognition for their outstanding performance and accomplishment.

If real results are to be accomplished, the real lessons of all fire disasters must reach the public consciousness and steps must be taken to prevent fire and panic in all places where numbers of people live or congregate. A serious loss of life from fire may occur at any time in certain department stores, schools, churches, dormitories, manufacturing plants, hospitals, etc. The measures to protect all such places should be taken before the disaster and not after. Inadequate exits, or locked doors, or obstructed exits, lack of automatic detection systems or automatic sprinklers where obviously necessary, flammable decorations and promiscuous smoking in hazardous areas and other obvious factors, can and should all be taken care of in all places of public assembly before and not after a fire strikes. An aroused and intelligent public opinion is what is needed to see that all such places are really made safe for the men, women and children who flock to them, trusting them always, to have made sure that at least they have a reasonable chance to get out alive if a fire occurs.

A FIRE prevention program should include the establishment of a fire prevention bureau by law and the enactment of a good fire prevention code. The fire prevention bureau should consist of a chief, and an assistant, and a sufficient number of properly trained inspectors and special inspectors for more technical inspections, a fire investigator, an arson squad, a clerical force, and a public relations man whose duty is to work with the public, the schools, and the Boy and Girl Scouts.

We in the Minneapolis Fire Department have recognized the value of setting up a training program in fire prevention. The various Boy and Girl Scout Troops in the Minneapolis Area Council have approved our program with very much enthusiasm. In fact, National Headquarters in New York has also endorsed it hoping that it will radiate to other troop areas.

THERE should be a close and harmonious working agreement between the fire department and the building inspector and his department. This agreement should include the approval by the chief of the Fire Prevention Bureau of all plans for new multiple dwellings, industrial and commercial buildings, hotels, night clubs and places of public assembly. The fire department should also check and approve plans for

remodeling of these buildings. In this way, the fire chief can have incorporated in these plans standard fire prevention practices which will tend to prevent fire or prevent the spread of fire, thereby saving lives. The installation of standard automatic sprinkler systems wherever possible will also assist in eliminating the fire loss, to some extent, and in reducing the life hazard.

The fire department should also engage in a program of fire inspections of buildings by the fire fighting personnel in their various company districts. This provides the knowledge required to better enable the fire fighter to rescue occupants of buildings in a fire emergency and to more quickly extinguish the fire. This program is working and proving very satisfactory. Our records for August show 52 building inspections by companies; September, 48; October, 47 — for a total of 147 buildings inspected by companies in the last three months.

In Minneapolis, we have, for some time, carried on a program of organizing and training fire brigades in our hospitals, rest homes, theaters, mercantile and industrial establishments. This is an important function of the fire department and is designed to protect the lives of the people occupying these buildings, as well as protecting the property. In the first nine months of 1950, we have installed fire brigade drills and given practical demonstrations on the handling of extinguishers in nine of our hospitals, 1,363 members participated in these programs. In 1950, we installed in 15 industrial plants, a fire brigade, fire drills, demonstrations, and have organized a first aid fire department for action until the arrival of the fire department. We have conducted these fire drills and demonstrations at all hours of the day or night due to the fact that many of these plants and hospitals operate on a 24-hour basis. The demonstrations sometimes take place at midnight or from five to six o'clock in the morning. We must do so because a number of plants have three shifts of employees and in order to instruct every individual, it has become necessary to set the program that will fit in best with the plants or institutions where we give the demonstrations or instructions.

WE also have set up a building survey in which we have checked on every building of the city of Minneapolis that has standpipes or sprinkler systems. The inspection forms we use give the location of building, type of construction, height, sprinkler system, wet or dry, sprinkler system water supply, location — Siamese sprinkler connection, standpipe system, standpipe system water supply, location — Siamese standpipe connection, water mains (size), hydrants (location), watchman service, A.D.T., fire extinguishers, roof ventilation, stairways to upper floors, stairway to basement, heating system, gas meter (shut-off), electric meter (shut-off), elevator shafts, enclosed or open, floor drains, life hazards, emergency call (as to the custodian or owner of said building), means of elevating hose lines. To date, we have made a survey of 60 such buildings, which includes hotels, department stores, office buildings, etc. We have also made a complete survey of 73 elevators in which a similar form has been filled out to aid the entire department in the matter of extinguishing a fire and saving life. We have also completed the survey in 21 hospitals and 74 rest homes located in the city of Minneapolis. These forms are indexed and filed away in a book and one of each will be placed in district cars, the deputy chief's car and the chief of the fire department's car so that in the event of a fire in any of these buildings, the chief in any district can refer to this file and immediately refresh his mind as to the entire means of best fighting that fire and reducing loss of life and property.

We have also inaugurated a new program of fire drills in the public, parochial and private schools so as to better train the custodians and teacher personnel of the schools as to the better means of controlling the students in the event of an emergency evacuation of the building. We have just recently received the whole hearted support of the public, parochial and private school systems in which an instructional program of fire prevention will be taught in the 5th grade throughout the systems of all the schools.

Then we have the program in which there will be a school junior fire department which will have its beginning in the 5th grade. We will have home inspection blanks, etc., in which they can make corrections of fire hazards found in their homes and the homes of their friends and neighbors. Through the establishment of this junior fire department, students will have the opportunity to put into immediate and practical use, what they have learned about fire prevention in the regular study of that particular grade. In securing the corrections of fire hazards, these junior firemen develop character through the use of tact, courtesy, diplomacy, and salesmanship, and gain a knowledge of fire prevention which they undoubtedly will use throughout life in protecting themselves, their loved ones, and their properties from fire. In correcting fire hazards after school members of the junior fire department are engaging in an activity which provides an outlet for their abundance of energy and directs it into useful channels. We have a question and answer booklet dealing particularly with fire hazards found in and around the home and an understanding of instructions which will help the student to eliminate fire hazards that destroy homes. The work of the junior fire department can be of great value to the community in preventing damage to property and loss of life by fire. In other cities, where this program is now in effect, there has been a noticeable decline in home fires due to the activities of these youngsters in securing correction of fire hazards and in spreading the knowledge of fire prevention.

The many thousands of homes in Minneapolis seldom have the benefit of a fire department inspection. Our limited manpower would restrict our ability to make these inspections even if we were so requested. With several thousand junior fire inspectors on the job in the right manner, I am certain that the home owners will be glad to extend their full cooperation. All destructive fires have small beginnings, many of them being started by defective wiring, improper use of electrical devices and fuses, just plain carelessness, and various other causes which could so easily be eliminated. It is easy to see, therefore, that the junior fire department can do an important job in assisting Minneapolis Fire Department.

IN order to really do a good job of promoting greater "Life Safety from Fire" for the citizens of the community, the fire chief must sell himself and his department to the general public. One of the things that we have long since learned about public relations is that it is personal relations that really count. The better the public understands the workings and functions of the fire department, the more confidence they will have in you and the less difficult will be your job of selling them on fire prevention. Talking to business groups, church groups, women's groups or any group of citizens brings the fire chief or his assistants personally before them with his message. In this way, you will reach men and women whom you may never reach through the newspapers, radio stations, or through a good many other mediums. They will be interested in what you have to say and will give more thought to their own safety from fire.

Farm and Rural Fire Fighting

From an address by Norton Ames, given at the NFPA Regional Meeting at St. Paul, Minnesota, on November 18, 1950. Mr. Ames is a member of the NFPA Committee on Farm Fire Protection and a member of the Volunteer Fire Department of Oregon, Wisconsin (Member NFPA)

Part 1 of three Parts

IN one of the smaller French cities, during World War I, several American soldiers were exercising their sense of humor — and superiority — at the expense of the antiquated, hand operated fire pump propelled by laboring Frenchmen of all ages, as it arrived in due time at the small fire in the quarters of the American forces.

After the excitement subsided, our young Americans could not forego the pleasure of telling the local mayor of the glory of the fire departments back in America, the high speed trucks, the uniformed firemen, high pressure streams, and aerial ladders, all in smooth operation on the fire in minutes after the alarm.

The enthusiastic recital did not impress the grey haired official. As he moved away he commented: "Until you Americans were stationed here, we had had no fires for fourteen years."

He was probably correct. But with the ample forests of our land, construction of wood was economical, quick and very flammable. The productive soil, good farm income, dairying and livestock feeding, made farmsteads of many large buildings, closely bunched to save steps. Farm fires have been accepted as a matter of course, and we were not unduly surprised at their frequency or extent. But as we become an older country, we conserve more and build less.

Certainly I do not have all of the answers to the problems of farm fire protection, but from experience and observation. I make these suggestions:

Joint purchase and maintenance, by village and country, of appropriately designed fire equipment.

Selection of trucks and smaller items which are desirable in both areas.

Firemen training appropriate to both.

Supplementary fire department services, such as:

a. Farm fire inspections

b. Emergency rescue

Joint Purchase of Equipment

It is common history that village fire departments did not venture into their rural territory until the gasoline driven fire truck could safely travel on rural roads. The trucks then were designed for village hydrant service and were heavy vehicles, with no windshields, smooth tires.

Service to the farmers was a fringe matter. After the fire, maybe the farmer made a donation to the firemen, or possibly he accepted fire service as his due as a patron of the village business enterprises. In time, perhaps the village lost its enthusiasm for permitting expensive, heavy village fire trucks to pound over poor rural roads. Some townships then had to buy their own trucks at considerable expense, storing them in or outside of the village center, and there was duplication of equipment.

If village and country will join together, each can have the service of a better truck or trucks, than either could afford alone. When the village fire trucks are stopped at the village corporation limits, the village loses not only in good neighborliness, but also loses experience with fires of greater severity, loses the alertness and training which comes with greater frequency of alarms, and loses in stimulation toward better care of equipment.

If village and country each go their separate ways, the rural township, with equipment housed at some highway junction, is also at a disadvantage, particularly in immediately available man power, in extent and variety of equipment, in facilities for practice and training, and in maintenance of equipment.

But, if they do join together, how should the cost be divided? There are probably many equitable ways. We, in Oregon, Wisconsin, divided it on the basis of our 14 years of department records, which showed that 60.6% of our alarms were country calls. I suppose that it might also be divided in the proportion of the amount of burnable property protected. Most tax rolls, I believe, show separately the value of land, buildings, stock and equipment, and other personal property. In some states, the fire district is favored.

In the division, the rural side should not forget that farm fires are more difficult, as well as more hazardous to the firemen both in traffic and at the fire. Rural fires are definitely harder on trucks, pumps, hose, and ladders. More time is required of the fireman for the alarm, and in readying the equipment on return to the station.

To me, it does not seem adequate that the rural territory should pay only a nominal charge on a per call basis. Before fire equipment can roll to a fire, there are substantial capital costs for trucks, for hose, and for small appliances. The firemen cannot borrow them from the counters of the suppliers after the alarm.

Our State Department speaks of the potency of a "Fleet in Being" as compared to merely a paper fleet. Obviously, fire trucks and their equipment must be "in being" whether there are five alarms a year or fifty. To be equitable, the capital cost should be spread over the entire territory served.

In their efforts to raise money for the purchase of trucks I have seen villages and their fire departments chose methods which, to me, seem to be poorly thought through. I have in mind:

"The cost of the equipment should come from the 'public pocket book,' and not through the efforts of the firemen by carnivals, dances, or solicitation. If the firemen fulfill their prime purpose, and also do a good job of firemanship training, that is all that should be expected of them."

Neither do I believe that "the Village or their Department should sell to their farmers prepaid fire service at $ 5.00. more or less, for a definite number of years."

I am sorry to say that this latter method has been quite common in Wisconsin, and I have tried to help several departments to extricate themselves from embarrassment due to such service contracts. They seem to have these difficulties:

The truck is sometimes worn out before the service contract has expired. Who is going to pay for the replacement truck?

There is not much leverage to help collect the higher fee for a fire call to a non-member. If the Department waits for bonds or guarantees before responding to such a non-member

alarm, precious time is lost and resentment incurred. Then, there is the stranger within the gates. He never had the opportunity to buy the prepaid service.

There is ill feeling between the owner of unexpired prepaid service and those who benefit by Wisconsin law, for instance, whereby the township is responsible for reasonable charges for a rural fire call. The prepaid member is paying for both.

If tax money is not immediately available, I believe that there are better methods. Maybe the municipality and the township have trust or reserve funds from which they may legally borrow, repaying over a 3–5 year period. My local bank has helped one of our townships to spread over a 3-year period, their share of a fire truck purchase.

Some manufacturers have a time plan. Nebraska apparently has an excellent one. Fire insurance companies may within limits, loan the necessary money at 1% interest. Length of term is not known.

Anyway, in my opinion, providing fire and police protection to its citizens and to the strangers who may be passing through, is an obligation of the township.

Equipment Appropriate to Both

Now, as to equipment desirable and useful in both village and country, probably there are several who are going to dispute my choices, but since my own experience of 28 years does not indicate any particular difference between small town and farm fires, I am going to recommend five tools: tank trucks for both village and farm, preconnected hose lines, oxygen or air masks, fog, and penetrants. I also believe in flood lights and radio, but as yet my experience is not extensive with them.

Tank Trucks

Obviously tank trucks of water are vital at rural fires, for they not only supply quantity, but they eliminate the necessity of immediate search on the farm for available water supplies. I also believe tankers to be very useful even in the midst of village hydrants.

A few weeks ago, in our own volunteer department, we made some time tests. The hydrant was a half block away from the location of the simulated fire. Without special practice, it was 72 seconds from the time that we dropped a man at the hydrant and started laying hose from the truck until we had water through the pump at 100 pounds pressure to two 1½ fogs. Hydrant pressure was about 40 pounds.

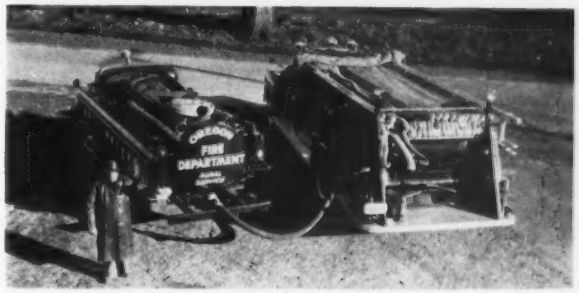
Using only the tank supply on the truck, it was not over 37 seconds from the time that we passed the hydrant on our way to the location until we had the water at the same pressure on the fire, a saving of just half. Preconnected lines were used in both cases.

Naturally, on village alarms, our second truck — an older 500 gpm pumper — drops a line at the hydrant to back up the tanker.

I am well aware of the deficiencies of our own and other volunteer departments in the smooth execution of even such simple plays, perhaps in darkness, and whatever we can do to help them in mechanical convenience, for a prompt, aggressive attack, we should do.

Our two Oregon tankers, total capacity 1700 gallons, respond to all rural calls. The No. 1, with 900 gallons supply and a 500 gpm pump, goes into action immediately. The second, with 800 gallons can be more deliberate in hooking to a gated suction intake of the pumper. If the treated water from the first tanker does not knock down the fire promptly, and it appears that even more water may be necessary, we can then quickly switch the source of supply to the second tanker.

This shows the hose arrangement on the 896 gallon tank truck which supplies the first streams at a fire. A water thief supplies a 50 ft. line of 1½-in. hose with fog tip, a 100 ft. line of 2½-in. hose with fog tip, and a 100-ft. line of 1½-in. hose with ⅞-in. solid tip.



The 790-gallon tank truck at left is used to replenish the larger tank truck when convenient, and then goes off for more water. The operation is conducted without interruption of hose streams. There are two valve openings on the suction side of the pump on the big truck.

Refilling of the 790-gallon tank truck can be accomplished in about four minutes by pumping from a farm stock tank or other available supply. Centrifugal pump is connected to tank by short length of a 2½-in. hose.

When it is exhausted, we can send it for refilling, and hold the fire with the few hundred gallons remaining in the first tanker. In the meantime, I hope that we will have had the forethought to call for additional tankers through mutual aid.

From this you will see that we prefer two tankers of moderate capacity to one of large capacity, and there will not be much difference in the cost, and more men can ride on two trucks.

Naturally, the load of transported water will depend on quality of roads. The Department must be sure that the truck chassis is not overloaded for frame, axles, brakes, tires, or power. The tank must be so designed that it can be completely filled without air pockets. My preference is a flat top tank with at least a 12-inch air dome, and an air vent from the other end of the tank. Then when the refill water runs out of the overflow, we know that the load is solid. Incompletely filled tanks are dangerous, as several departments have reason to know from fatal accidents.

The second part of this article will appear in the February 1951 issue of FIREMEN.

"Emergency Pipe Line" Demonstration

USING an "emergency pipe line," an adaptation of a type commonly used for agricultural irrigation, several fire departments recently cooperated in an interesting demonstration at Simsbury, Connecticut, attended by observers from neighboring departments.

The purpose of the demonstration was to test the pipe line under field conditions and to measure its worth for possible connection with use in civil defense or for situations where regular water mains are temporarily out of service.

The pipe used on this occasion was built by the Shepard Irrigation Equipment Company, Ellington, Connecticut. It is constructed of steel or aluminum in 20-foot sections, and is 8 in. in diameter. Two men may carry two sections at once, one man at each end holding the ends by special handles. A simple slip-coupling facilitates joining of the sections.

A test unit of 1,000 feet of the pipe line was coupled and placed in an open field near the Farmington River. It was supplied by a 1,000 gpm Gorman-Rupp irrigation pump which operated at suction through a 6-in. line in the river. Pump pressure at the river was maintained at 55 pounds throughout the tests.

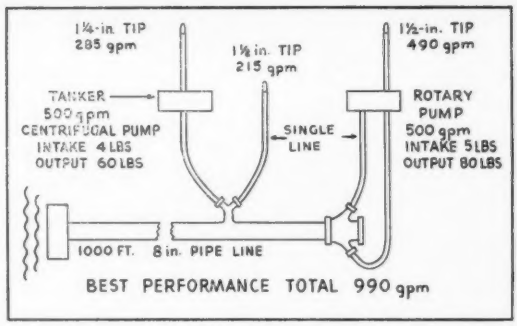
The end of the pipe line had two 2½-in. ungated outlets and a 4½-in. connection for pumper use. The larger connection was capped. From the other outlets two lines were connected to a 500 gpm pumper with a rotary pump. This in turn fed a single line controlled by a hydrant gate and having a 1½-in. tip.

A branch connection a few feet from the end of the pipe line, at a right angle and not large enough to create friction loss, provided two 2½-in. outlets. One, controlled by a single hydrant gate, had a 50-foot length to an open Underwriter pipe with a 1⅛-in. tip, and was operated at all times at pipe line pressure. The other connection was to a large tanker which provided one stream through a 1¼-in. tip at 55 to 60 pounds pump pressure with gage showing a reading of 8-in. vacuum.

Several combinations of tip sizes and pressure readings were tried and are outlined in the accompanying tables. Initial readings were taken with the Gorman-Rupp pump at the river maintaining 55 pounds and with the fire department pumper and the tanker, which had a 500 gpm OCD pump, both operating at various pressures. After these readings were taken both pumpers were returned to quarters and four lines were taken directly from the pipe line, with pressure at the river varying from 55 to 65 pounds.

Pictures and data for this story were supplied by Commissioner Horace B. Clark, Granby, Connecticut

Members of the demonstration crew shown unloading sections of the pipe line from a flat bed trailer. Special handles at each end of pipe facilitate handling.



This sketch represents one of the tests conducted at Simsbury and shows how pumpers and lines were connected to the emergency pipe line to give the results reported below.

1. TYPICAL TESTS — SUPPLYING FIRE DEPARTMENT PUMPERS

	Pumper Intake Pressure	Pumper Discharge	Nozzle Tip-Inches	Nozzle Pressure	GPM
FD Pumper	5 lbs.	80	1½	54	490
FD Tanker	4 lbs.	60	1¼	38	285
Direct Pipe Line	..	55	1⅛	33	215
			Total gpm		990
FD Pumper	5 lbs.	45	1⅛	44	248
FD Pumper	5 lbs.	45	1⅛	42	243
FD Tanker	4 lbs.	60	1¼	38	285
Direct Pipe Line	..	55	1⅛	30	205
			Total gpm		981

2. TESTS WITHOUT PUMPERS

Lines of 100 feet used with exception of original line direct from pipe which remained a 50 foot length

Pump Pressure at River	Nozzle Tip-Inches	Nozzle Pressure	Length of Line in Feet	GPM
55	1⅛	30	100	205
55	1¼	26	100	235
55	1½	20	100	298
55	1⅛	34	50	218
			Total gpm	956
65	1⅛	36	100	224
65	1⅛	35	100	219
65	1⅛	36	100	224
65	1⅛	41	50	240
			Total gpm	907

(*Ed. Note.* These tests and layouts, while interesting, as an example of auxiliary water supplies, do not show the fire department pumpers to full advantage because their ability to provide higher pressures for longer lines and elevation was not fully exploited. It would have been interesting to have supplied the 500 gpm centrifugal pump on the tanker with two lines as was done with the other pumper. It must be remembered that in water horsepower a 500 gpm fire department pumper discharging at 120 pounds has a greater work output than the irrigation pump giving 1,000 gpm at only 55 pounds. Also, with use of 1 in. tips the pumpers could have provided much higher nozzle pressures, but they were limited by the low pressure water supply.)

This shows four of the streams that resulted from one of the tests described above. Tables show that use of the pumpers did not show an impressive difference in resultant gpm.

RESOLVED . . BETTER FIRE PROTECTION IN 1951

Cedar Rapids, Iowa. (*Acme*) On November 16, 1950, Mr. and Mrs. Harold Heath were away from their home when this fire occurred. Of the four children in the house, three died in the flames and the fourth managed to leap to safety from the porch roof. Note intensity of flames in window at right.

Red Bank, New Jersey. November 10, 1950. (*Dorn's Photo*) Two lumber companies and a television manufacturing concern were involved in this fire. Fire fighters from an estimated 35 municipalities were called to the scene. Eighteen 2½-in. lines and eight booster lines were put into use. Sprinkler systems in exposed buildings helped in minimizing losses. Estimated damage was $300,000.

Standard Thompson Corporation, Dayton, Ohio. October 5, 1950. (*Dayton Journal Herald Photo*) Mis-lead as to the flammable nature of a "safety solvent" an employee dumped four gallons on the fourth floor of this building for cleaning purposes. The solvent came in contact with burners under a degreasing unit and flames flashed to the wooden partitions and the wood roof of this otherwise fire-resistive building. A three-alarm fire resulted but damage was confined to the fourth floor and roof of the building. Loss approximately $100,000.

Stavig Brothers, Inc., Sisseton, South Dakota. October 22, 1950. (*World Wide Photos*) A delayed alarm helped this fire in the destruction of the Stavig Brothers Store and several stores adjacent to the building and across the street. The fire started in the basement and because of lack of watchman and automatic detection devices the building was completely involved when fire fighters arrived. Estimated loss $475,000.

Furniture Warehouse, Somerville, Mass. October 2, 1950. (*Acme*) 11 Engine companies, 4 ladder companies, and a rescue squad responded to this fire in a third class, wooden frame storage building. Fire fighters used thirteen 2½-in. lines and two 1½-in. booster lines in attacking the building from the front entrance, adjoining roofs, and aerial ladders. Lack of sprinklers, automatic detection equipment, and limited means of access helped to make this a loss of approximately $12,000.

Nichols Hardware, Cents-ible Drug Store, and Coey's Shoe Store, Chico, California. October 2, 1950. (*Chico Enterprise Photo*) The metal roofs of these buildings hindered the operations of fire fighters who responded to the alarm. Despite eleven 2½-in. lines, "opening-up" was difficult and the combined loss of the three stores was estimated to be $110,000. The roof of the Nichols Hardware Store collapsed two hours after the fire started, but firemen had control of the fire shortly afterward and made good stops in protecting adjacent buildings.

Fire in County Home Proves Value of Pre-Planning

PRE-PLANNING of fire rescue in hazardous institutions and determination of fire fighting tactics to be employed can be decisive factors in minimizing loss of life and fire damage. The benefits of such precautionary measures as carried out by the Legionnaire Fire Department of Harrisonville, Missouri, became dramatically apparent when an institutional fire recently occurred in their area.

The institution involved was the Cass County Home for the Aged, located 1½ miles from Harrisonville. It housed 25 people, 19 of whom were aged. At 4:15 A.M., Lawrence Hiel, a route man for a local bakery company was making a delivery to the home, when he thought he smelled smoke. Not wishing to frighten the inmates, he drove to Harrisonville and informed the night marshal. When they both returned to the home the building was already seriously involved in fire.

It was 4:35 when the Legionnaire Fire Department received the alarm and 3½ minutes later 25 men and two 500 gpm pumpers were at the home. Heavy smoke was issuing from all doors and windows in the basement and first floor of the home. By this time the inmates of the home had been removed, with the exception of five on the first floor and four unfortunately housed in the basement. Using "Chemox" self contained-gas masks, Chief George M. Allen and the assistant chief were able to enter the building and rescue four women and one man trapped on the first floor. Extreme heat and flame prevented immediate entry into the basement where four men were later found dead of suffocation.

This is the hallway of the first floor of the Cass County Home. The fire started in the basement directly below this area. It was impossible for fire fighters to work effectively in the basement until the fire broke into this hallway where a hose line was ready, giving access to the heart of the blaze. When this occurred, a fog line to the basement, and three lines through the front and rear doors confined the fire to this area. (*Harrisonville Missourian Photo*)

Meanwhile, one pumper took suction from a nearby cistern containing about 6,000 gallons of water. With a 2½-in. line from this pumper and an Elkhart fog nozzle, the chief was able to enter the basement and operate for about ten minutes before heat and steam forced him to withdraw. Other fire fighters had been using a 1-in. booster line from the second pumper, but soon three 1½-in. lines, one with a fog nozzle, were in operation.

The Belton Fire Department, eighteen miles away, was called at 4:50 A.M., and responded with five men, a 500 gpm pumper, and 2,500 feet of 2½-in. hose and began to lay a line from the city limits to the home. A 1,000-gallon tank truck loaned by Charles Gage, a resident of Harrisonville, was put into use hauling a total of 4,000 gallons of water from the water plant in Harrisonville to the cistern, which was also being supplied by a garden hose from the home. At 5:30 the fire broke into the hall on the first floor. This allowed direct entry into the basement with a 1½-in. line.

When Chief Allen submitted his report to the NFPA Fire Record Department the following paragraph was included: "We have for years made a practice at our fire meetings to discuss the ways to fight fires in various buildings. This preplanning certainly paid off in this case. We knew the possibilities that faced us when we received the alarm. We had made arrangements with city officials to take both our trucks to the county home. Usually we only take one outside city limits. We were aware of the shortage of water at that location, and while most of the firemen had not been to the home, they knew the floor plan by heart and the location of the cistern. We called the State highway patrol and had the benefit of their two-way radio. We notified all doctors in Harrisonville and they all responded. We had planned to use the Legion home in Harrisonville to house these old people. This was done by 6:30 A.M."

Despite such thorough planning, damage to the home amounted to $18,000 and four of the inmates, quartered in the basement, had died from suffocation. Nevertheless, the remainder of the aged people, who had been trapped, not only were rescued, but were established in new quarters during the actual fire fighting operation. A limited water supply had been carefully utilized, an efficient mutual aid operation was used, and a fine example of efficiency of operation through thoughtful pre-planning by the Legionnaire Fire Department was rewarded.

One of the inmates of the home rests on the ground after being rescued from the building. In the background are members of the Legionnaire Fire Department and the two pumpers which were first on the scene. Pre-study of the home and knowledge of the limited water supplies helped in simplifying procedures of action, and maximum use was made of available water through relays and tank supply.

How Hampton Falls, New Hampshire, Started Its Volunteer Fire Department

by Edward B. Sandberg*

ONE evening, in the Spring of 1948, a paper was read at the local Grange on the subject of rural fire protection. Much interest was expressed in the idea of forming a volunteer fire department for Hampton Falls (500 population). As a result the author called a meeting of all persons interested in forming a fire department to attend a meeting in June. The Board of Selectmen was specifically invited. That evening the three members of the Board of Selectmen were the only ones to appear. I then decided to await further development before calling another meeting.

In September due to a great interest sparked by the forest fires to the north of us, I called a meeting at the town hall. Over fifty attended, and those present voted to organize a volunteer fire department. Mr. Smart of Brunswick, Maine, was guest speaker and explained his rural fire fighting equipment.

Another meeting was held in November, and a committee was formed to draw up by-laws and a slate of officers. The department was formally organized in December, 1948, and we were off to a start. Our aim from the beginning was to be organized and equipped to meet the approval of the New Hampshire Board of Underwriters. We incorporated and started looking over various fire engines. We also inspected all the water holes in our area and made plans for improving them. At the January meeting a committee was appointed to look into the purchase and maintenance of a piece of fire equipment. We visited many towns in New Hampshire, inspecting their fire engines and stations and studying their set-ups.

We had Chief Fire Marshal Aubrey G. Robinson of the State of New Hampshire give a talk on the needs of a fire department, mutual aid, and the new telephone call system. We also visited Chief John Holden of Newington, nationally noted for his advocacy of tank trucks for fire protection, looked over his equipment and invited him to come down and speak to our group. At a public meeting he gave a very fine talk and answered many questions about volunteer fire fighting and mutual aid as operated in New Hampsbrre.

AT the February 1949 meeting we decided to ask the town to appropriate $7,200 for the purchase of a pumper with a large water tank plus necessary equipment, the money to be paid back at the rate of $1200 per year. In return we promised to house and maintain the equipment. As we had to have a 2/3rd vote for a bond issue and there was great opposition in town to such an expenditure, we organized a committee to answer all questions that might arise at town meeting. Each member was assigned some phase to study for proper presentation and discussion. As a result of our being able to answer clearly all the questions (and there were plenty) we got the appropriation through with a 4/5ths majority.

We arrived at the $1200 payment from the fact that the town was paying better than $1000 per year for outside help to fight our fires, and with uncertain success. Almost every house fire had resulted in a cellar hole because the equipment sent was not sufficient to fight fire in a rural area and often

Ralph Sanborn photo

arrived too late. Also the neighboring towns did not feel very happy about fighting our fires when we made no effort to protect ourselves and were not in position to aid them in an emergency.

After getting money for the fire engine and ordering a 500 gpm pumper with a 500-gallon water tank and two reels of booster hose, we started in to raise money for our station. We had an open meeting in March 1949 and invited all citizens of the town to attend. At this meeting we explained our aims and plans for the future. We also explained that in addition to fighting fire, we would try to lower fire insurance rates by obtaining recognition of the better protection provided. We have had the advice and cooperation of Mr. Clifford Hudson of the New Hampshire Board of Underwriters and the town has recently been surveyed for reclassification. We also had considerable advice and assistance from the NFPA office in Boston regarding our various problems.

Among the other speakers that came to give us help and encouragement were Chief Wesley Robinson of London, New Hampshire, who gave us the history of his department; Chief Fire Warden Martin Webber described the forest fire protection organization of New Hampshire, and Warren Y. Kimball of NFPA FIREMEN magazine who told of the activities of various volunteer fire departments.

As a result of our appeal one of our citizens donated the logs to be used for building our two-door fire station. Members cut the logs at a local mill and provided the labor necessary for completing the 1½-story frame building.

EVEN before our pumper was delivered it was decided that the fire department would go into training and answer all fire calls with such equipment as was available. This would give us some experience and show that the department was on the job. Thanks to a prompt notice and fast work, the first major fire after our truck arrived was not a cellar hole. At the time we were not completely equipped and were using some war surplus nozzles and some hose borrowed from the Hampton Fire Department. Because of lack of proper nozzle equipment our water tank was exhausted rather quickly but not before the fire had been sufficiently knocked down so that it could be controlled when additional help arrived. Subsequently, as a result of another good stop, a citizen donated the latest type of fog nozzles and we have obtained sufficient 1½-in. hose so that better use can be made of our water tank equipment.

* Mr. Sandberg is a Boston business man who resides in Hampton Falls, New Hampshire.

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Chief Van Sant and members of the Napa Fire Department shown in front of the new station on the campus of Napa Junior College.

Fire Fighting Course at Napa Junior College

by Thomas S. Ward, Supervisor of Fire Training, California State Department of Education (Member NFPA Committee on Firemen Training)

A VOCATIONAL course in fire fighting designed for those who intend to make the fire service a lifetime career has been inaugurated at Napa Junior College, Napa, California. The course is of two years' duration and its completion will help to shorten the probationary period of the new man entering a fire department.

Chief V. D. Van Sant of the Napa Fire Department (member department of NFPA), C. E. Martin, City Manager of the city of Napa and H. M. McPherson, Superintendant of the Junior College combined their efforts in the establishment of the course. The college furnished the land on which the city built a new fire station, and the fire department supplied an instructor.

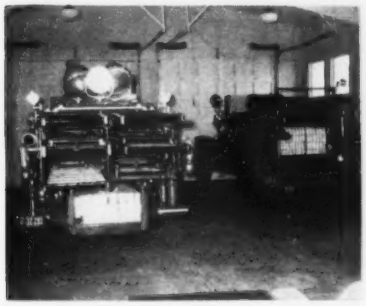
Assistance also came from an advisory committee which included the aforementioned members and the following: I. E. Manassee, City Councilman of Napa, Captains F. E. Stallings and E. S. Wilson of the Napa Fire Department, E. A. Erickson, County Fire Warden, W. W. Ross, Fire Insurance Underwriter, M. C. Fullmer, Coordinator of Apprentice Training, and Thomas S. Ward, Supervisor of Fire Training, State Department of Education, who acts as consultant for the committee.

A newly completed fire house, Napa Fire Department Station No. 2, on the Junior College campus, also serves as a dormitory for students of fire fighting who are in part-time employment with the local fire department. Employment is set up in accordance with class and training requirements. The students are a part of the Napa City Fire Depart-

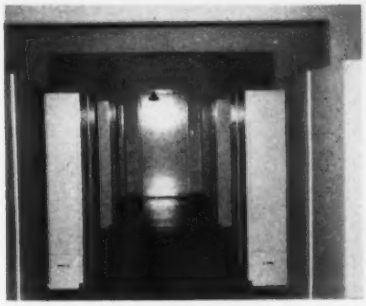
This is the interior of one of the dormitories showing the bed and locker arrangement. Students are governed by all rules, regulations, and ordinances that apply to the Napa Fire Departments.

This is the recreation room in the new fire station which is used as a dormitory for the students. These facilities are made available for the use of students and regular members of the Fire Department.

Some of the members of the current fire fighting course shown with Captain John E. Stone of the Napa Fire Department who serves as instructor.



Apparatus room of the Napa Fire Department showing pumper and ladder truck used for training and actual fire purposes.



Another view of the dormitory showing the facilities made available to the students who also receive a salary of $15 per month and dormitory facilities.

ment and are governed by all rules, regulations, and ordinances that apply to that department.

The following requirements have been established for applicants for the fire fighting class: Applicants must weigh over 150 pounds and be not more than ten percent overweight. Minimum height is 5 feet, 8 inches in stocking feet, and there must be evidence of a high standard of physical health and mental ability.

The course consists of the following subjects:

Grade 13	*Units*
English	6
Physical Science or Physics	6
Health Education	2
Physical Education	1
Fire 41–42	18
Total	33

Grade 13	*Units*
U. S. History and Constitution	6
Fire 43–44	18
Physical Education	1
Electives	6–8
Total	31–33

Captain John E. Stone who serves as instructor for the course and also for the service training program of the Fire Department is being sent by the City of Napa to the University of California for a teacher training course.

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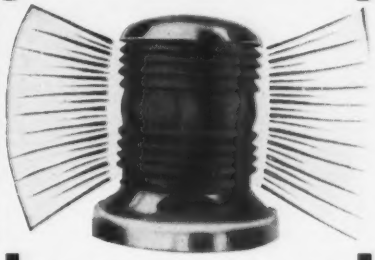

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Rohm and Haas Industrial Fire Brigade

FIRE protection at the Bristol, Pennsylvania, plant of the Rohm and Haas Company, manufacturers of plastics and chemicals, is maintained by a volunteer fire brigade of 22 men on each shift. The brigade is composed of shift maintenance mechanics and shift production groups, under the jurisdiction of H. W. Thompson, Plant Safety Director. The members are assigned positions so that the plant fire apparatus, consisting of a fire truck, two trailer pumps, and three hose carts, can be taken quickly and efficiently to the scene of an alarm.

In the event of a drill, an actual fire, or fire school training session, the fire fighting brigade is under the supervision of one of the four fire marshals who are on duty at all times. These fire marshals are all experienced, trained fire fighters. Chief Marshal J. DeWitte and Marshal J. J. Cowan formerly were chief officers in permanent city fire departments, and Marshals William H. Smith and H. Quicksall are chief officers in their respective volunteer fire departments.

A systematic program of training is carried out Tuesday and Friday of each week for the brigade members on the 8 A.M. to 4 P.M. shift. All phases of fire fighting are taught with special emphasis and training techniques covered on the use of foam, wetting-agents, waterfog, and fog foam. Many simulated fires are started on the training grounds so that the fire fighters will know "what to do" and "how to do it" in the event of a fire or other emergency.

Fire drills are sounded at unscheduled times during the day or night shift from any one of the 50 fire alarm boxes in the area. When the apparatus arrives at the scene of the drill alarm, the same evolutions are carried out as if a real fire were in progress. These alarms for drills are sounded by Mr. Thompson or by Mr. S. J. Aita II, Safety Engineer.

In case of shutdown of the plant occurs for any reason, such as vacations, repair of equipment, etc., members of the fire brigade can work with the fire marshal on duty and act as fire watchers or aid him in his daily inspection tours. This not only allows the brigade members to keep working, but also keeps a crew available at all times to man the apparatus and fight fire in case one should start.

●

NFPA Inspection Manual

THE pocket-size NFPA Inspection Manual is now ready for distribution. This handy book is for use by property owners, fire departments, inspection offices (as of insurance companies, central managements, and governmental departments).

It is bound in Fabrikoid, has 366 pp., 4⅛ x 6½ in. and costs $3.00 per copy. ($2.00 each for six or more copies ordered at one time and sent to one address.)

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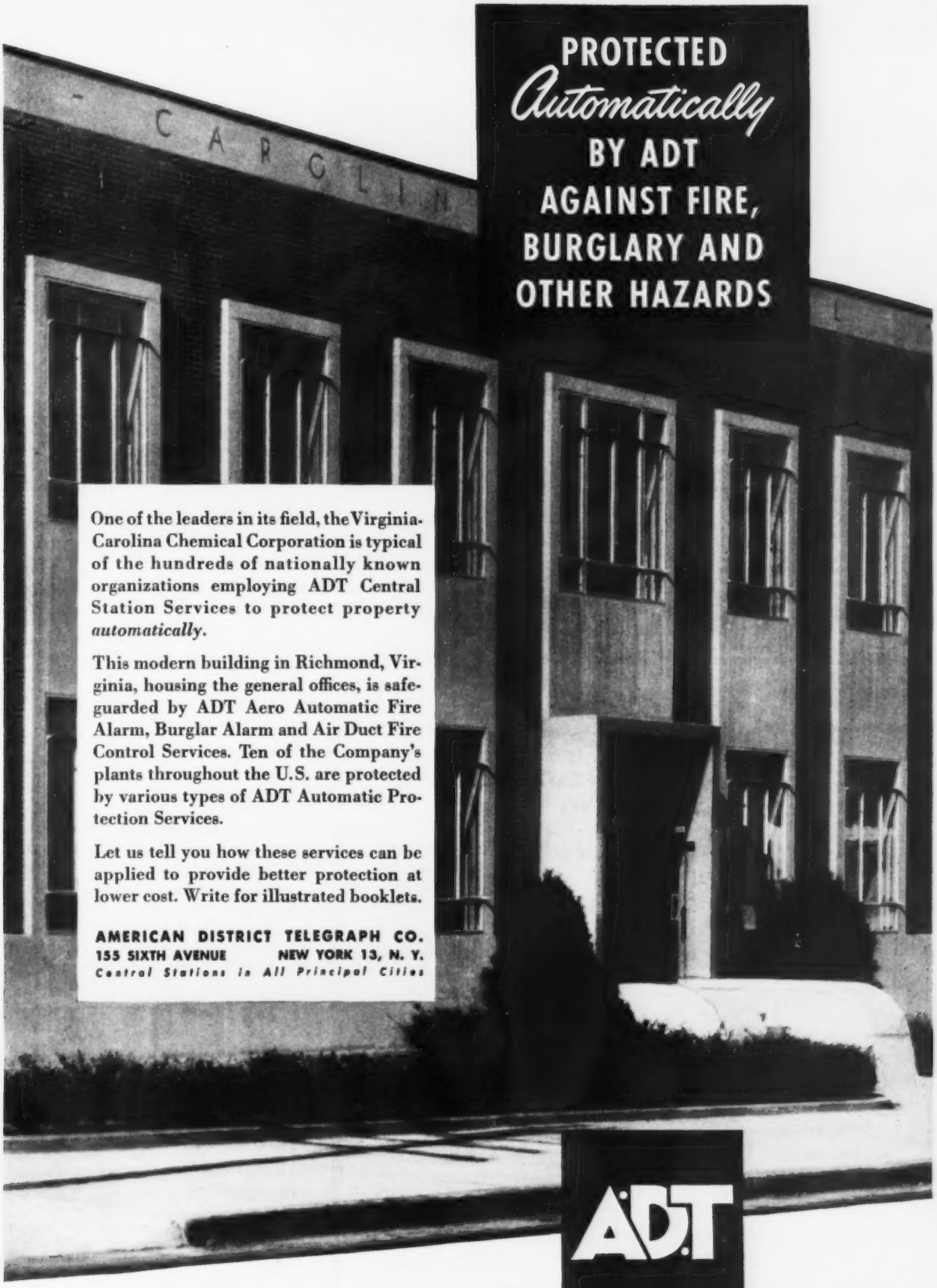
Water Tanks for Forest Fires

This is one of the 53 concrete catch-basins built in the mountains behind Pasadena, California, to store water for fighting forest fires. The water tank is under the basin, is 25 feet in diameter, and holds 5,000 gallons of water. A pipe line with hose connections runs a few feet downward from the tank, utilizing gravity pressure. A normal winter's rainfall should fill the tanks. They are accessible to U. S. Forestry Service tank trucks for fire fighting over specially built roads. Travel time between any two of the tanks is about a half hour. (World Wide Photo)



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Now more than ever your community requires a loud dependable alarm as the nerve-center of your protection system. Be sure your signal is dependable. Test it daily as a time signal. Check now to be sure your signal is adequate for the winter season.

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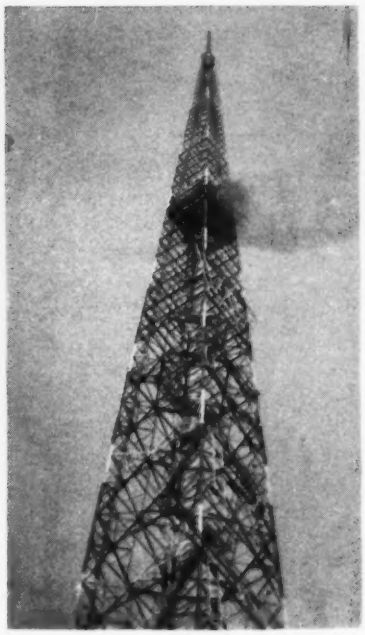
Fire in TV Tower



Firemen from the North Bergen, New Jersey, Fire Department had to climb 550 feet of stairs to extinguish this fire in the tower of station WOR TV in that city. When they finished the laborious ascent they extinguished a fire that had started in the receiving room of the tower where there was microwave, radio, and other electrical equipment. Twelve soda-acid and two CO_2 hand extinguishers were carried to extinguish the fire.

Motor Fire Apparatus Association

REPRESENTATIVES of fifteen fire apparatus manufacturers met in Cleveland during the month of November to discuss the necessity for obtaining priorities on materials needed for manufacture of fire apparatus. The meeting was necessitated by difficulty in obtaining sheet metal, stainless steel and other metal products. Representatives of National Fire Protection Association, the National Board of Fire Underwriters, and Fire Engineering Magazine were also present. The meeting was presided over by Ernest L. Maxim of the Maxim Motor Company, President of the Motor Fire Apparatus Association.

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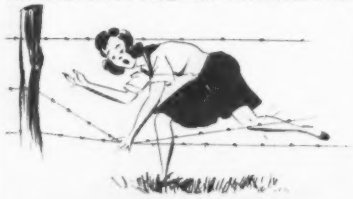

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Manufacturers of the Famous **MACKINAW Coats**

Fire Effects of Bombing Attacks

"FIRE Effects of Bombing Attacks" is the title of a booklet released during December by the Federal Civil Defense Administration. Copies have been distributed to the governors of all states as background information on the fire problem and copies will be furnished to local fire chiefs by their state civil defense directors. The booklet is approximately 6 by 9 inches with 48 pages, including pictures and tables, and individual copies may be obtained for 15c from the Superintendent of Documents, Washington 25, D. C.

The pamphlet is an authoritative statement, having been prepared for the National Security Resources Board by the Civil Defense Liaison Office, Office of the Secretary of Defense, which is under the direction of Colonel Barnet W. Beers. Kyle P. Laughlin, who did much of the work in compiling the pamphlet, is now serving with the Federal Civil Defense Administration in connection with fire matters.

The pamphlet points out that structural damage caused by fire accounted for 80 percent of the total damage to cities attacked by airborne weapons during the last war. The first section of the book presents a summary of the data on bombing attacks in World War II, taken from reports of the U. S. Strategic Bombing Survey. The second section gives a method of appraising the susceptibility of any American city to like attacks and suggests defense methods. The information contained therein is sound and constructive. Adequate fire control planning for civil defense, the booklet points out, will depend to a great extent on the existence of those characteristics of built-up areas which would not make them susceptible to fire storms and conflagrations. The fire storm phenomena are described. Both German and Japanese cities underwent fire storms as the result of heavy bombardment. A fire storm occurred at Hiroshima, one of the two cities hit with the A-bomb. Fire storms result from rapid and simultaneous ignition of a large area, in which many fires merge into a single inferno. A pillar or column of burning gas rises almost vertically from such large fires with in-rushing winds at the base reaching gale proportions. A complete burn-out results.

Persons who have used the NFPA book "Fire and the Air War" may find this official government document of additional value and it should be obtained by all persons planning details of fire defense.

HANDSOME IS
AS HANDSOME DOES
...THAT'S

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STAR EXHIBIT OF THE 1950 I.A.F.C. CONFERENCE was this new Mack Type 125, 1250 gpm pumper recently delivered to Palm Springs, Calif. Specifications include: Air brakes • 400 gallon water tank • 4-stage auxiliary high pressure pump • 2 electric rewind high pressure hose reels • 10', 20' and 35' aluminum ladders • white sidewall tires.

Sure, Macks have good looks—your first glance will tell you that. But it's what they can *do*—and *keep* doing—that counts!

For instance, just take a look at the features of the Palm Springs Mack. For modern design, this Class A pumper is really in a class by itself. And there's a lot you *can't* see that's important, too.

Deep-chested power—for fast starts, quick runs, and great pumping capacity at low engine speeds. *Bred-in-the-bone dependability*—for faithful response and full-time protection. And *bulldog stamina*—that keeps performance like new under long, hard service.

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Fire Schools in 1951

New Mexico: The 1951 Fire School and Convention will be held in Hobbs on May 14, 15, and 16.

South Dakota: The Pierre Fire Department will be host to the South Dakota 22nd Annual Fire School, June 18 through June 22, 1951.

Oklahoma A & M Fire Protection Course

THE two-year fire protection course at Oklahoma A & M has been accredited by the Engineering Council for Professional Development. The course was developed for high school graduates and 37 students from 17 states are enrolled for the fall semester.

The spring semester starts January 29, 1951. Information may be obtained from Professor H. P. Adams, Director of the School of Technical Training, Oklahoma A & M College.

Colorado Training

DURING the fiscal year ending on June 30, 1950, the Colorado fire training program included the following firemanship instruction according to Chief Charles Bonnelle, State Firmanship Instructor; 70 centers or fire departments were served. An enrollment of 2684 students received a total of 838½ hours of instruction. Five area schools were conducted and additional firemanship instruction was given at uncontracted or unscheduled centers.

Library for Firemen to be Dedicated to Memory of Mort Walton

"THE Alabama Local Government Journal" reports that the establishment of a library at the Alabama State Firemen's School in Tuscaloosa will be a major project for the Alabama State Firemen's Association during 1951. The library will be dedicated to the late Chief Mort Walton, formerly itinerant state firemen's instructor and friend of the Alabama fire fighters. It will be known as the Mort Walton Memorial Library and will be staffed by the members of the Tuscaloosa Fire Department. Chief Pete Mathews, chairman of the Board of Directors of the Alabama State Fire College and past president of the Alabama State Firemen's Association will head the library committee. The library is to be dedicated during the annual state fire college. It is believed that this library will be the first of its kind established in connection with a state firemen training school.

Membership Report

Fire Department Membership in the NFPA costs $12.50 per year. For Fire Departments, this includes 6 subscriptions to FIREMEN. Additional fire fighters may be enrolled to receive FIREMEN at $1.25 each.

NFPA Welcomes:

The following departments as Fire Department Members. Current Fire Department Membership in the Association now totals 1,357 companies and 20,438 men.

California: City of Modesto Fire Department, Modesto.

Louisiana: Golden Meadow Fire Department, Golden Meadow.
David Crockett Steam Fire Company, No. 1, Gretna.

Maryland: Annapolis Fire Department, Annapolis.

Michigan: Flint Township Fire Department, No. 2, Flint.

Missouri: Harrisonville Legionnaire Fire Department, Harrisonville.

New York: Middleport Fire Department, Inc., Middleport.

Every member receives a handsome membership certificate illustrating the history of fire protection.

Alberta, Canada: Calgary Fire Department, Calgary.

British Columbia: Princeton Volunteer Fire Brigade, Princeton.

Saskatchewan: Lloydminster Fire Department, Lloydminster.

Uniform U. S. Air Raid Signal

A UNIFORM system of air raid signals for use throughout the United States has been announced by Millard Caldwell, federal civil defense director.

Two types of warnings will be used, a "red alert" when there is danger of imminent attack, and the "all clear." The "red alert" will last for three minutes and will be warbling or fluctuating signals of varying pitch from sirens, or a series of short blasts by horns or whistles. The "all clear" signal will be a series of three steady one-minute blasts by horns, sirens, or whistles, with two-minute intervals of silence in between.

Cities will sound the "red alert" after key-point warning stations have received word that enemy attack is imminent. When the alert is sounded all persons at work in business and industry should take cover or go to shelters previously designated by civil defense authorities locally. All people in schools, homes or other dwellings should take immediate shelter as suggested in official civil defense publications or by civil defense authorities.

NATIONAL FIRE PROTECTION ASSOCIATION
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(Name of individual or organization, rank, title, or business connection)

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Paid Fire Department ☐
Call or Volunteer Department or Company ☐
Industrial Fire Brigade ☐

City or Town.....**County**.....

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.....**State or Province**.....

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Enclosed $12.50 (Check or money order) ☐

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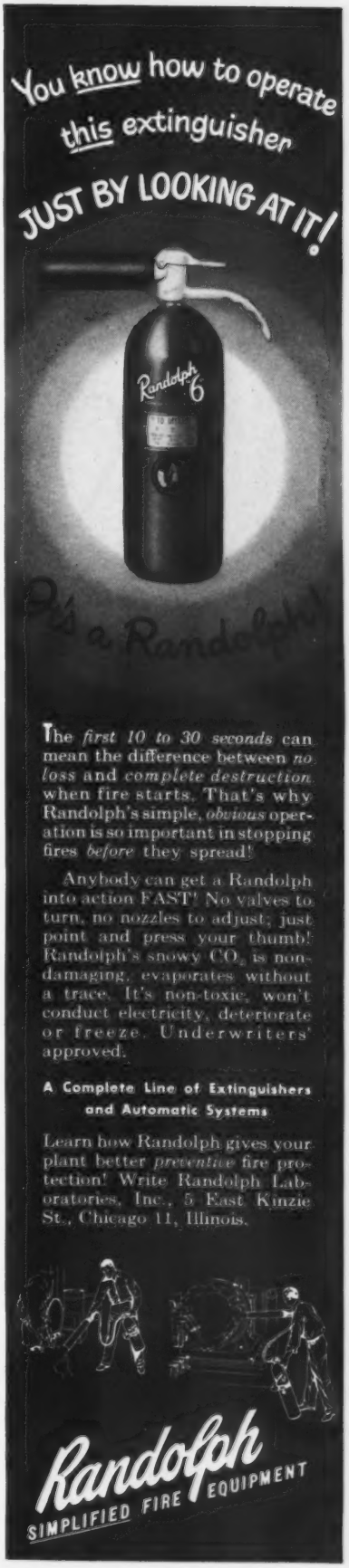
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A Complete Line of Extinguishers and Automatic Systems
Learn how Randolph gives your plant better preventive fire protection! Write Randolph Laboratories, Inc., 5 East Kinzie St., Chicago 11, Illinois.
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(SEE ANSWER BELOW)

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ANSWER: The world's worst forest fire was the tragic Peshtigo fire in Wisconsin in the fall of 1871.

INDIAN
FIRE PUMPS

if used promptly could stop and avert such disasters at the start. Whenever fire strikes, quick use of INDIAN FIRE PUMPS can confine it and extinguish it. Building, roof, field, grass and spot fires are "*killed*" in a hurry by these fire fighters.

Fire fighting crew smashes brush fire with **INDIAN FIRE PUMPS**

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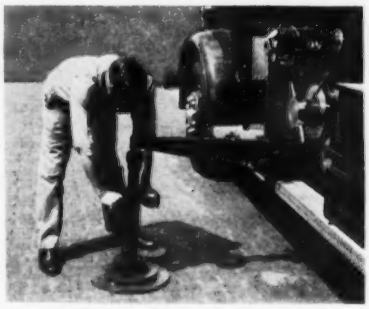
Salina, Kansas, Fire Department

(*Continued from page 7*)



Chief Travis found that on soft ground as when a burning building sets back from the street, aerial ladder jacks sometimes require greater surface area for maximum stability. Accordingly, his shop constructed circular metal plates that can be placed under the ladder jacks as shown.

utilize over 50 percent of the capacity of its 500 gpm pumps and 33 percent of the capacity of 750 gpm pumps in its initial hose stream layouts.

ON first alarm response Salina has 6 or 7 pre-connected 2-in. lines giving 1200 to 1400 gpm almost instantly. On duty manning for first alarm apparatus averages 12 men backed up by good off-shift response. Chief Travis hopes to increase manpower so that first alarm units will each roll with 5 men.

There are few fires that can resist a half-dozen 200 gpm streams applied at the outset, so if and when such big fires do occur, Chief Travis has his heavy artillery ready and also preconnected so that no time is lost. Heavy duty equipment consists of first, an American-LaFrance pumper-aerial supplied by two 3-in. lines and having two ladder pipes with large host attached, in addition to three 2-in. leader lines. Incidentally, the 2-in., 2½-in., and 3-in. hose all have standard interchangeable 2½-in. couplings. The 3-in. supply lines provide the full capacity of the Class A 750 gpm pump on the aerial if hydrants are ample. Where hydrants can supply only 400 to 500 gpm each, the pump operators report no difficulty because they watch the residual pressure on the incoming side of the pump and merely put out as much water as the water system can provide whether it is 400 gpm or 750 gpm. In general, hydrants in the mercantile district give satisfactory flows at pressures above 50 pounds.

Another heavy duty unit is a reserve pumper rebuilt in the department's shop and loaded with dual 750 ft. supply lines

of 3-in hose. This has a monitor nozzle directly connected to a 750 gpm American-LaFrance pump. This pump, now on a large Seagrave chassis, has provided 1200 gpm when operating from a hydrant. The department also has a 1300 gpm Ahrens-Fox piston pumper with divided hose body carrying 2½-in. hose and two leader lines of 2-in. hose with fog nozzles. These two large pumpers are manned by the off shift.

A new shop-built truck with 500 gpm pump has two low-slung interconnected water tanks, divided body with 2200 ft. 2½-in. hose, two 2-in. leader lines, numerous body compartments for equipment, a Leece-Nevillte 80 amp. alternator to supply electric power, aluminum ladders up to a 35-ft. extension held by locally designed ladder clamps for quick release.

The radio equipped chief's car also has a Leece-Neville alternator plus 100 ft. of No. 10 rubber cord with sliding contract reel and portable spot light.

The department also owns and operates a rural fire truck as a service to nearby rural residents who patronize local merchants. This truck has a large water tank, two booster reels and aluminum ladders. It is manned by a detail of two firemen.

Space does not permit detailed description of all the ingenious features of the Salina department such as a new type combination hose strap and spanner tool or special petcocks to prevent air lock in pumper discharge gates.

In summary, the Salina Fire Department is a hard hitting force that backs up its year-round fire prevention activity by 9 preconnected 2-in. leader lines and 3 heavy stream nozzles that have a total rated capacity of 2910 gpm actually applied on a fire. A total rated pumper capacity of 4550 is available.

Correspondence Wanted

FLIGHT Sergeant Brian A. Hughes, Fire Services, R. A. F., Sealand Chester, England, is interested in exchanging information with an American fire fighter or fire fighters. In addition to corresponding, Sergeant Hughes suggests that fire service publications from the two sides of the Atlantic might be exchanged after the local subscriber has finished reading each issue.

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DRY CHEMICAL
IS MORE DEPENDABLE
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THIS TRADE MARK ASSURES YOU OF QUALITY PRODUCTS

Engineers of Steamer

(*Continued from page 00*)

Tom Power was promoted to Engineer during the change-over to the Two Platoon System in 1919 and is now assigned to the Hydrant Service Apparatus in the 4th Division. "At one time," Tom told us, "the Engineer had the best job in the Fire Department. Quite a few years ago, before my time, the officer was required by the rules to run ahead of the apparatus when responding. And all hands, except the driver and Engineer, marched back to quarters after taking up. The Engineer rode both ways and got more money for it, too!"

Thomas Smith No. 1 was appointed to the department in 1906 and promoted to Engineer in 1918. He is assigned to 12 Engine but presently is detailed as 1st Division messenger. Tom, like most of the other Engineers, has a number of service ratings to his credit. He told us a little about the Engineer's duties when responding.

"The first thing he did was to disconnect the steamer from the house supply and then, when the apparatus reached the street, he'd toss a lighted torch into the boiler and start the fire. We always carried three or four of these torches on the steamer in case we needed them. Before we'd go four blocks we'd have 40 to 50 lbs. on the steamer and by the time hose lines were stretched and hooked up, we'd have 70 to 80 lbs. Pressure built up pretty fast and as long as you kept that fire going, she'd pump. We had very little trouble with the steamers."

And there's Jim Digney, appointed in 1913 and made Engineer in September, 1921. Though assigned to Engine 267 in Queens, Jim has been detailed to the Division of Combustibles. He remembers the horses and steamers very well and told us that "the steamers required very little care other than the maintenance of the pressure on the boiler and the usual polish and spit. But the horses," Jim stated, "they kept us going all day.

Much of the material contained in this article was obtained from Battalion Chief George Bauer (retired), and we are deeply indebted to him. We had been told that if there is anything we wanted to know about the Department, Engineers of Steamer — or baseball — we should see Chief Bauer. And we did. We had to feed them, water them, exercise them, groom them, and after each run they had to be rubbed until dry and their legs warm. We fed them three times a day, and at nine o'clock bedded them down for the night. We took better care of the horses than we did of ourselves. But, even with all the work they gave us, most of the old-timers who worked with them miss them as much as I do."

The Chief retired a few years ago and, even though well past his seventieth milestone, his memory is as fresh as tomorrow's newspaper. We talked of men, most of them gone, men whose names are indelibly embossed on the glory pages of the department — AND HORSES.

"The Crokers, Martin, Ross, Kenlon, McElligott were all Engineers," the Chief reminisced, "and at one time a drive was on to make the Engineer a required step between Fireman and Lieutenant. But it never went through." We slipped back through five decades — through years of war and peace, years of the flapper and the Model A, the nickelodeon and the crystal set — back to the 1890's and Engine I.

Show Company

"I was appointed to Engine I back in 1896," the Chief went on, "and for three years I never wore a coat to a fire. We were the 'Show Company' at that time and even with the horses, we got out in 14 seconds. So you can see we never had a chance to dress properly."

At one time during his fifty-two years in the Fire Department, the Chief was in charge of the Department stables and was responsible for some 1,550 horses. "We never bred our own," he continued. "We bought them at auction with a thirty-day option, put shoes on them and assigned them to companies. Sometimes we'd buy ten and get one good one out of the batch. The best horses were Bays, Western bred, but even the best rarely lasted more than five years. Then we'd retire them to the outlying sections or sell them on the market."

The Chief continued, "But those days are gone and the kids of today will never get the thrill we got watching the horses tear up Broadway. The horses are gone — the steamers are gone and, come to think of it, there's not many of US left, are there?"

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John Bean Fire Fighters go into action *fast* because of quick knockdowns. Patented Bean Fog Guns, operated easily by one man, can be brought into play the instant equipment arrives at the fire.

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Modernize your fire-fighting methods with this efficient John Bean High-Pressure Fog Fire Fighter. 600-gal. tank—60 G.P.M. at 850-lb. pressure—2 hose lines, each 250 ft.—2-, 4-, 6-ton chassis.

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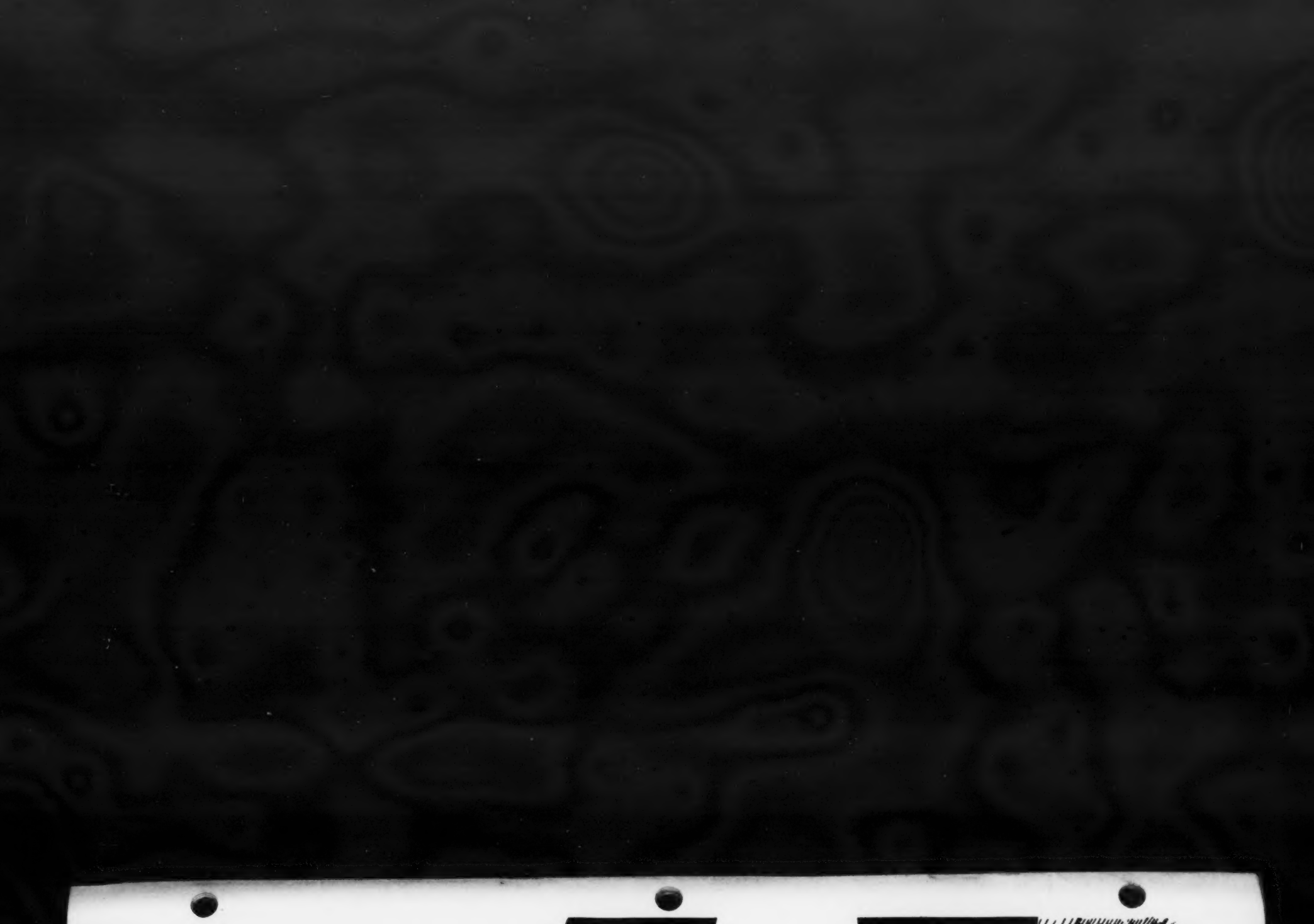
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